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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,724	12/05/2003	David J. Giesen	87222AEK	2652

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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,724

Applicant(s)

GIESEN ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-32 and 34-40 is/are rejected.
- 7) ☒ Claim(s) 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-30-04; 6-30-05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This Office action is responsive to the response to the election of species requirement received December 14, 2005. Applicant has elected species Inv-11 on page 15 where R_{a, b, c, d, 2, 3, 4} are all fluoro and R_{5, 6, 7, 8} are all *p*-biphenyl. Claims 1-5 and 8-40 read upon the elected species. Claims 6 and 7 are withdrawn as non-elected.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 8-32, and 34-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 2003/0137239) in view of Nakaya et al. (EP 666298) [both cited by applicant on the I.D.S. received June 30, 2005]. Matsuura et al. discloses organic electroluminescent displays comprising between electrodes a light emission layer containing a host compound and a dopant compound wherein the dopant compound is a phosphorescent compound (see abstract). Matsuura et al. teaches the host material may include known hole transporting material such as aromatic tertiary amines (see par. 77 and page 9). Matsuura et al. discloses several compounds similar to the species under consideration, but does not specifically show the species under consideration. Nakaya et al. teaches in analogous art tetraaryldiamine derivatives according to formula (5) as hole transporting compounds which read upon the species under consideration (see page 6). The variables r7, r8, r9, r10, r13, r14, r11, and r12 may be

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zero. R_5 and R_6 may be halogen atoms and r_5 and r_6 may be 4 (see page 6 and abstract). It would have been obvious to one of ordinary skill in the art to have selected the compound according to the species under consideration because Nakaya et al. clearly teaches it according to formulas (1) and (5) and it would have been obvious to one of ordinary skill in the art to have selected the compound as the host material of the Matsuura et al. device, because Matsuura et al. teaches a tertiary amine compound is desirable as the host material of the light emission layer. The properties of the host material required by the claims are considered to be inherent, because Nakaya et al. discloses the same compound as applicant.

With regard to claims 29-31, Matsuura et al. teaches iridium-containing complexes comprising phenylpyridine ligands (see pages 5 and 6). The content of the dopant is 0.001 to less than 50% by weight with regard to claim 32 (see par. 46). With regard to claim 34, the host may be part of a polymer chain (see par. 78).

With regard to claims 35 and 36, Matsuura et al. teaches filters for the multi-color light emission apparatus (see par. 104). It would have been obvious to one of ordinary skill in the art to have produced a white light emitting device incorporating color filters, because one of ordinary skill in the art knows that a combination of the colors of the visible spectrum results in white light and furthermore, any desired color of light emission can be achieved through selection of color filters.

With regard to claim 37, Matsuura et al. further discloses fluorescent compounds such as DCM II in the luminescent layer (see Example 2, par 138).

4. Claims 1-5, 8-32, and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aziz et al. (US 6,740,429) in view of Nakaya et al. (EP 666298). Aziz et al. discloses

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organic light emitting devices comprising a mixed region between the two electrodes (see col. 7, lines 35-46). The mixed region comprises a hole transporting material preferably comprising compounds such as tertiary aromatic amines (see col. 7, lines 49-51). The mixed region further comprises 0.01 to 10 weight percent fluorescent luminescent compound (see col. 8, lines 40-43) with regard to claim 37. The mixed region may comprise phosphorescent compounds such as fac tris(2-phenylpyridine) iridium (Ir(ppy)) in an amount of 3 weight percent to 30 weight percent (see col. 8, lines 60-66). Aziz et al. fails to disclose the specific tertiary aromatic hole transporting compound now under consideration as the host material. Nakaya et al. teaches in analogous art tetraaryldiamine derivatives according to formula (5) as hole transporting compounds which read upon the species under consideration (see page 6). The variables r7, r8, r9, r10, r13, r14, r11, and r12 may be zero. R₅ and R₆ may be halogen atoms and r5 and r6 may be 4 (see page 6 and abstract). It would have been obvious to one of ordinary skill in the art to have selected the compound according to the species under consideration because Nakaya et al. clearly teaches it according to formulas (1) and (5) and it would have been obvious to one of ordinary skill in the art to have selected the compound as the host material of the Aziz et al. device, because Aziz et al. teaches a tertiary amine compound is desirable as the host material of the light emission layer. The properties of the host material required by the claims are considered to be inherent, because Nakaya et al. discloses the same compound as applicant.

With regard to claims 35 and 36, it would have been obvious to one of ordinary skill in the art at the time of the invention to have added a color filter to the Aziz et al. device in order to achieve a desired emission color, because Nakaya et al. teaches it is known in the art to use a

color filter with a device for controlling light emission color, which would include white color (see Nakaya et al., page 98, lines 37-40).

Allowable Subject Matter

5. Claim 33 is objected to as being dependent upon a rejected base claim in terms of the host material species currently under consideration, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach a phosphorescent polymeric material together with the benzidine-containing host compound currently under consideration as part of a light emitting layer as required by the claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dawn Garrett
Primary Examiner
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February 27, 2006